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PROCEEDINGS
OF
THE ROYAL SOCIETY.

1847.

No. 69.

November 30, 1847.

At the Anniversary Meeting,

The MARQUIS OF NORTHAMPTON, President, in the Chair.

Mr. Graham, on the part of the Auditors of the Treasurer's Accounts, reported, that the total receipts during the past year, including a balance of £1885 13s. 2d., carried from the account of the preceding year, amounted to £5133 6s. 11d.; and that the total expenditure, including an investment of £2185 3s. 8d. in the funds, was £4496 15s. 8d., leaving a balance in the hands of the Treasurer of £636 11s. 3d.

The thanks of the Society were given to the Auditors for the trouble they have taken in examining the Treasurer's Accounts.

The thanks of the Society were given to the Treasurer.

List of Fellows of the Royal Society deceased since the last Anniversary (1846).

On the Home List.

Argyll, the Duke of.	Ellis, John, Esq.
Beauclerk, Vice-Admiral Lord	Grover, Capt. John.
Amelius.	Hailstone, Rev. John.
Beckett, Right Hon. Sir John,	Hamett, Sir John, M.D.
Bart.	Hatchett, Charles, Esq.
Bingley, Robert, Esq.	Kerrison, Robert Masters, M.D.
Bridgman, William, Esq.	MacCullagh, James, Esq.
Carlisle, Nicholas, Esq.	Mackie, Rev. John William.
Dealtry, Rev. William, D.D.	Napier, Macvey, Esq.
Dobson, Sir Richard.	Northumberland, The Duke of.
East, Right Hon. Sir Edward	Oldershaw, Venerable John, D.D.
Hyde, Bart.	Parkinson, John, Esq.

Pearson, Rev. William, LL.D.	Sumner, George Holme, Esq.
Pocock, Sir George, Bart.	Towneley, Peregrine Edward, Esq.
Pollock, Sir David.	Turner, Samuel, Esq.
Sleath, Rev. John, D.D.	Wilmot, Sir John Eardley, Bart.
Solly, Samuel, Esq.	

On the Foreign List.

Alexandre Brongniart.

Defaulters.

William Burge, Esq.	William Hutton, Esq.
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List of Fellows elected into the Royal Society since the last Anniversary (1846).

On the Home List.

Acland, Henry Wentworth Dyke, M.D.	Hooker, Joseph Dalton, M.D.
Alexander, Henry, Esq.	Maitland, John Gorham, Esq.
Back, Sir George, Capt. R.N.	Morpeth, Right Hon. Viscount.
Baly, William, M.D.	Mountcashel, Earl of.
Brooke, Charles, Esq.	Percy, John, M.D.
Burrows, George, M.D.	Plowden, William Henry Chicheley, Esq.
Christie, James Robert, Esq.	Rudge, Edward John, Esq.
Dwarris, Sir Fortunatus.	Russell, Right Hon. Lord John.
Ellis, Thomas Flower, Esq.	Simpkinson, Sir John Augustus Francis.
Hall, William Hutcheson, Capt. R.N.	Webster, Thomas, Esq.
Hardwicke, Earl of.	Wellington, The Duke of.

On the Foreign List.

Le Verrier, U. J. Mons.

The President then addressed the Meeting as follows :—

GENTLEMEN,

SINCE our last Anniversary, your Council have been much occupied with anxious deliberation on many subjects of great importance to our Society: among these, the one that chiefly interests science is perhaps the question, how we may most completely secure the proofs of priority in the communication of scientific discovery. For this purpose we have framed rules which I hope may be found sufficient for the attainment of our object.

I regret extremely that it is not in my power to announce to you that any tidings have reached us from our gallant countrymen who have engaged in the arduous enterprise of again exploring the icy regions of the Arctic Seas. There is no reason indeed for our feel-

ing any alarm as to the safety of Sir John Franklin and his brave companions, but it is impossible for us not to be anxious on their account. Let us hope that the same gracious Providence that shielded Sir James Ross amongst the icebergs of the South will protect also our adventurous sailors in the North.

Since our last Meeting in June, I trust, Gentlemen, that you will think that our Apartments have assumed a more creditable appearance. It is more than forty years since our rooms were painted; a long period in the smoky and dingy atmosphere of London. I hope the time may come when ingenuity and science combined may, in some degree at least, abate this great drawback to the convenience and comfort of the British metropolis. Your Council, and that of our friends and neighbours, the Society of Antiquaries, feeling that they ought not longer to delay to repaint their respective apartments, have united in doing so to the staircase and ante-room, which are common to both Societies. I am happy to add, that by the care that has been taken in the management of this affair, its expense has been much reduced from that on the former occasion. Its cost has, however, been still necessarily considerable; but I trust that it has been so well done, that though we cannot expect such a period as forty years again to intervene, yet that it will be some time before we are obliged to repaint our apartments.

In spite of this unusual expense, I am glad to say that our finances are in so good a state, that we have been able to invest in the public funds the large sum of two thousand pounds. You must not however imagine that this is the surplus of the present year; for the truth is, that according to our usual custom one-half of this sum would have been funded immediately after our Anniversary, and would so have come into our financial statement of next November. The lowness of the funds, and the present state of the money market, have rendered it expedient for us to invest the money without further delay. A portion of our surplus has arisen from the unusual circumstance that two of our Fellows who had paid annual subscriptions have compounded in the last year; their composition has produced the sum of eighty pounds, but of course our annual income is by this means proportionably diminished.

During the last year, an important alteration has been made in our Statutes with reference to the election of new Fellows, as you must be well aware. This change was made with the approbation of a large majority of your Council. As I was one of those who entertained considerable doubts of its prudence and expediency, I cannot claim any praise if it prove advantageous to the Society, nor must I be considered responsible in case of its failure. Having been adopted, however, it appears to me that it ought not hastily to be either rescinded or modified; that it ought to have a fair trial, for the experience of many years can alone decide whether it be injurious or beneficial.

Many of you, Gentlemen, must be aware that a much more stringent regulation was at one time in contemplation, which would have affected your privileges. Had not that proposition been abandoned,

I should have felt it my duty to urge strongly on the Council the propriety of bringing the whole question before the Society at large, and I have little doubt that that course would have been readily adopted. As, however, the limitation of the number fifteen applies alone to the number to be recommended by the Council, leaving to you the power to elect more candidates, should you think fit to do so, there seemed to me to be no necessity for calling you together in a Special General Meeting.

Having stated to you my doubts as to the expediency of the limitation of the number of Candidates recommended by the Council, it is right to add that those doubts do not at all extend to the change in the manner of our election. I am convinced that considerable advantage must accrue from its being attended with greater solemnity, and from the participation of a larger number of our Fellows in its exercise. This change has also the further recommendation, that the reading of our papers will not be perpetually interrupted by the circulation of the ballot-box.

The alteration of the time for the adjudication and presentation of our medals, and for the delivery of the Annual Address of the President, will remove many of the disadvantages of the autumnal period of our Anniversary. As great doubts exist whether we could legally alter the time for the election of our Councils without a new Charter, and as such a course would be attended with many difficulties and much expense, we have thought it best to do nothing in that matter.

In the course of the last twelvemonth we have had the unusual occurrence of a Special Meeting on the question of the adjudication of a Royal Medal by a former Council. I hope and trust that no unpleasant feeling remains on the subject. We are engaged in a noble pursuit—that of scientific truth, and in that pursuit we ought to overlook all minor considerations.

Three very important works have recently issued from the British press, the results of arduous scientific labours in very distant parts of the globe. Of these, one, the measurement of sections of the Meridional Arc in India, though highly important in itself, and honourable to the scientific ability of Colonel Everest, who carried it through, and to the enlightened policy of the Directors of the East India Company, who ordered it, I shall merely mention thus cursorily, as the Royal Society is no otherwise connected with it than by its regard to whatever tends to promote the cause of natural knowledge and to do honour to the science of Great Britain. The two other works are more immediately interesting to us. Of these, one extends our own knowledge of the sidereal heavens, while the other enlarges our acquaintance with our own planet. The first is the filial monument erected by the science of a son to the fame of his equally eminent father. The second, the visit by a British seaman to the South Polar regions after having explored the Arctic Seas. I need not say that I speak of the volumes for which we are indebted to Sir John Herschel and to Sir James Ross.

The former of these works has received at the hands of your

Council the award of the Copley Medal, which, before I sit down, I shall have the satisfaction of bestowing on its author. The latter work is still more directly connected with ourselves, inasmuch as your Council, in conjunction with the British Association, brought before the Government the advantage of exploring the antarctic portion of the globe at the time that great simultaneous inquiries were carried on into terrestrial magnetism.

Moreover, as the instructions on scientific subjects were drawn up for Sir James Ross by us, at the request of Government, we cannot but consider the expedition of the *Erebus* and *Terror* as, if not the child, at least the nurseling of the Royal Society.

It is true that by the labours of Colonel Sabine a considerable portion of the magnetic results of the expedition of Captain Ross has been already laid before the world; it is true also that we have long known that under the auspices of Sir James Ross the British flag has waved where it never waved before; or at least that no mortal who had seen the flaming but snow-covered Hecla of the Southern Pole had ever before returned to tell the tale; but we had not the interesting history of all that had been achieved, and at what peril, until now.

Though we have no tidings from Sir John Franklin, and cannot now expect any for some time, I rejoice that northern discovery has not stood still. By the energy of Mr. Ray, under the patronage of the Hudson Bay Company, it has been ascertained beyond a doubt that Boothia Felix is a peninsula; and other additions have been made to our acquaintance with that remote portion of the globe.

Though not directly connected with the Royal Society or its proceedings, yet I think, Gentlemen, you will excuse my alluding for an instant to the two remarkable chemical and medical discoveries, by means of which the most severe operations are performed without pain to the patient—a saving of human suffering, which must extend also to the humane and sympathising surgeon. This is indeed a great and noble achievement of modern science—an achievement for which we cannot be too grateful to Him who has thus graciously permitted philosophy to lighten the ills mortality is heir to. You will allow me to add a hope that mankind, and especially civilized nations and civilized Governments who gave their rewards to a Jenner, will not forget what is owing to the new benefactors of their species.

I regret to have to state that there are three vacancies among our Foreign Members. We should before this have requested you to fill them up, but for the unavoidable absence of your Foreign Secretary from our recent Councils on account of illness. This has induced us to postpone the question, as we felt that it would not be right for us to act in that matter without the benefit of his advice. I trust however soon to have to propose three foreign gentlemen to you for election.

I now come to the most grateful part of my address—that of the presentation of the Royal and Copley Medals. The two subjects proposed for the former this year were the sciences of Chemistry

and Mathematics. As in the latter there was no paper coming within the Royal regulations to which we could properly give the medal, we were obliged by the same regulations to turn to the subjects of Physics and Geology. We have, in consequence, awarded the Medal in Physics to Mr. Grove, for the paper which constituted the subject of the Bakerian Lecture; and to Mr. Fownes, for papers which, as Mr. Grove's, appear in the Philosophical Transactions. I must request, in Mr. Fownes' absence, Dr. Bence Jones to receive the medal and to transmit it to him.

Dr. BENCE JONES,

In transmitting to Mr. Fownes this Royal Medal for his very valuable paper describing a new vegetable alkali, a discovery of the highest chemical interest, I beg you to inform him of our deep regret that illness should prevent his being present to receive it in person. In a note to his paper, I find that in a manner very honourable to himself, he has stated that in a portion of his discovery he had been anticipated, though unknown to himself, by Mr. Wm. Coley Jones of Plymouth. This acknowledgement on his part is what we should naturally expect from a gentleman desirous to promote science for its own sake, and therefore anxious to claim no further credit for his own discoveries than was justly due to them. This circumstance must necessarily lead the public to place more implicit faith in his subsequent communications, which I hope may be numerous, and that the Royal Society may have the honour to give them to the world.

Mr. GROVE,

It is with great pleasure that I place in your hands this Royal Medal, for your very interesting and valuable paper with which you have enriched our Transactions. It is, indeed, a good proof of the love of science when a gentleman of your important and engrossing profession is induced to employ the little leisure that is left him in the pursuit of scientific investigation. We must therefore feel the more obliged to you. It would be selfish in the Royal Society to wish you an increase of that leisure, that she might profit by it; but I may be allowed to express the confident expectation that you will always feel an anxious wish to promote the cause of science and the increase of natural knowledge.

SIR JOHN HERSCHEL,

It is with the highest feelings of satisfaction that I perform the duty of giving to you the Copley Medal for your long, and arduous, and valuable labours in the service of astronomy at a very distant part of our globe.

I feel quite sure that every cultivator of that noble branch of natural knowledge will agree that we could not find a son of science more deserving of such a mark of our respect. That word is indeed too cold to express the feelings entertained for yourself by the Royal

Society. They are feelings so warm that they cannot be enhanced by that which would otherwise enhance them; by the recollection that you have an hereditary title to our regard. I may, however, venture to say, that among the many reasons for gratitude to your eminent father, it is not the least that he has trained his son to follow in his footsteps and to emulate his fame.

Dr. Roget, the senior Secretary, then addressed the Meeting as follows :—

MY LORD,

I wish to take the opportunity afforded me by the present assemblage of the Fellows to announce to them my intention of retiring, at the next anniversary, from the office I have so long had the honour of holding in the Royal Society. This determination, as many of my friends well know, has not been formed hastily; and I would have carried it into effect some time ago, had it not been for the peculiar circumstances in which I found myself placed.

The duties required of the Senior Secretary have, in process of time, become much more laborious and much more arduous than they were at the time of my appointment to that office, when I succeeded Sir John Herschel in the year 1827, which is just twenty years ago. During this long period, which, I may be allowed to remark, constitutes a large portion of human life, I have witnessed considerable changes in the Society. There have been changes of Presidents, of Secretaries, of Librarians, of Assistant Secretaries—in fact all the offices, in every department, from the highest to the lowest, have undergone repeated changes. I have seen, in the course of these events, various changes of administration, and many important alterations in the mode of carrying on the business both of the Society and of the Council; and these alterations have been constantly attended with increased labour to the Secretaries. It is since the period of my first appointment that the Council have undertaken the office of assigning the channels through which the Royal favour is to flow in the distribution of the Royal Medals; an office, the proper performance of which, as your Lordship well knows, is generally difficult, often delicate, and sometimes invidious; and of which the trouble and responsibility have been felt by the Council to be so great, that they have found it expedient to delegate the larger portion of that responsibility and trouble to separate standing scientific Committees, which they appoint from year to year. To these Committees they have also consigned the task of determining the selection of papers for publication in the Philosophical Transactions.

Another circumstance which has added considerably to the labours of my office, is the practice now adopted of having all the proceedings, both of the Society and of the Council, printed and, of course, published to the world. Upon me has devolved the whole of the editorial labour of these publications, and the superintendence of the minutiae of the press; not to speak of the far greater care and attention required in preparing the abstracts of the papers read

to the Society, compared with what was sufficient for the purpose when these abstracts were merely read at the meetings, and then consigned to oblivion in the archives. All these causes, and many more that I might mention, have concurred in rendering my office anything but a sinecure. In fact, every new measure that was adopted entailed on me greater toil, made larger encroachments on my time, and imposed on me more extended responsibility. Notwithstanding these additional burdens, and amidst the breezes I have weathered, and the battles I have been compelled to fight, for your Lordship can bear witness that occasions have not been wanting to put my zeal for the Society to the proof, I have never shrunk from those duties, but have devoted my best energies to the service of the Society and the promotion of its interests. Having now grown grey in that service, I feel that it is time for me to retire, while my strength is yet unbroken, and before the changes which the Society is now undergoing shall cause fresh demands to be made upon it; that I may dedicate the remaining term of life that may yet be spared me to those pursuits of science to which I have always been warmly attached, and with which the labours and the cares of office have seriously interfered.

I have alluded to the existence of some peculiar circumstances which had prevented my taking this step some time ago. These circumstances must be fresh in the memory of most of those I am now addressing: they sprung from a series of malignant attacks, carried on with extraordinary pertinacity during nearly two years, against the Society, its President, and, above all, the Committee of Physiology; and these attacks were pointed more particularly against myself, under the erroneous notion that I was especially responsible for the proceedings of that Committee; whereas, in reality, of all its members, I was the one who was least implicated in them. While the battle was raging, I could not, in honour, withdraw from the field; my duty was to remain at my post and abide the pelting of the storm. But these squalls having now blown over, I feel at liberty to retreat, and to resign into your hands the trust you have so long and so liberally confided to me. I should have tendered this resignation on the present day had I not considered that the interests of the Society might suffer by your being suddenly called upon to choose a Secretary, and that the more proper and respectful course was to give due notice of the vacancy; and I have accordingly allowed my name to be placed before you as Candidate for re-election in the balloting list recommended by the Council. If you are pleased to accept the tender of my services for another year, ample time will be afforded the Society for making selection, at the end of that period, of the person best qualified to fulfil the duties of Secretary.

The President then called on Dr. Roget to read the biographical notices of some of the deceased Members, which he then handed to him.

HUGH, THIRD DUKE OF NORTHUMBERLAND, the eldest son of the

second Duke, was born on the 17th of April 1785. He received his education at Eton, and in his seventeenth year was entered at St. John's College, Cambridge, where he passed through his college career with considerable distinction, having stood high in the first class at every examination; so much so, indeed, that at his final examination, in June 1805, it was considered right by the Master and Examiners to notice his exertions by a recorded entry, conveying "their highest approbation of Earl Percy's uniform and successful application to the subjects of all the six examinations, when from his rank he might have declined attending the two last." In July of the same year, he took his degree as Master of Arts without further examination, as was then the universal custom. Very soon after quitting College and attaining his majority, he entered on public life as Member for Buckingham in 1806, and continued to sit as Member successively for Westminster, Launceston, and finally for the county of Northumberland till 1812, when he was called to the House of Lords by writ.

In 1817 he married the Lady Charlotte Clive, second daughter of Earl Powis, and his father dying shortly after this event, he succeeded to the dukedom on the 10th of July 1817.

Of his public and political life this is not the occasion to speak at length. Suffice it to say, that although taking generally little part in the management of affairs, and avoiding rather than courting political power, he was on more than one occasion selected as the representative of his Sovereign in situations of high dignity and importance. On the occasion of the coronation of Charles X. he was invested with the character of Ambassador Extraordinary at the French Court, the whole charges of which mission, though sustained with very extraordinary magnificence, he insisted on defraying from his private resources. In 1829, he was also appointed as the successor of the Marquis of Anglesea in the Lord Lieutenantcy of Ireland, where, though of decidedly conservative politics and thoroughly protestant principles, his gentle and conciliatory disposition secured him general respect and good-will even from those opposed to his views of government.

In the year 1834, he became High Steward of the University of Cambridge, and in 1840, was elected as successor to His Royal Highness the late Duke of Gloucester in the Chancellorship of that venerable institution, which office he filled during the remainder of his life.

In the year 1823, his Grace was elected a Fellow of the Society of Antiquaries and of the Linnæan and Geological Societies, as well as a Trustee of the British Museum, attending the meetings of the Board of Trustees with great regularity and assiduity, even while suffering severely from attacks of gout, which during many years of his life afforded him little respite. In 1839, he filled the office of President at the Newcastle Meeting of the British Association for the Advancement of Science. The Observatory of Cambridge owes to his munificence the large and excellent equatoreal telescope, by Cauchoix, which is one of its most efficient instruments, and of

which, with its mounting and the building which contains it, as well as the publication of its elaborate description by the present Astronomer Royal, he defrayed the entire cost. The recent appearance of Sir John Herschel's *Astronomical Observations at the Cape of Good Hope*, as he himself informs us in his preface to the volume containing them, was owing to the destination by his Grace of a large sum in aid of their publication. In his own county, and through the whole extent of his vast territorial property, he stood forward as the patron and supporter of every institution tending towards public improvement; and the general prosperity and advancing condition of a tenantry more numerous and substantial as a body than those probably of any landed proprietor in the British dominions, bears honourable testimony to the enlightenment of his views and his identification of their interests with his own,

His death took place on the 11th of February of the current year. It was sudden and unexpected, having been preceded only by an attack of influenza, from which no ultimate danger was apprehended.

NICHOLAS CARLISLE was born at Stillington in the county of Durham in 1771. His father married, first, Miss Elizabeth Hutchinson, an immediate descendant from Colonel Hutchinson, who defended Nottingham Castle; and, secondly, Susanna Shottom, to whose father, Captain Cook, our celebrated circumnavigator, owed his education. Mr. Carlisle was the son of the last-named lady, while his half-brother, the late celebrated surgeon, Sir Anthony Carlisle, was the fruit of the first marriage.

After receiving the usual grammar-school education, Mr. Carlisle entered the naval service of the East India Company, where he amassed a considerable sum of money, most of which he expended as joint housekeeper with his brother, to whom he was much attached, and whom he thus assisted at the commencement of his professional career.

In the year 1807, he was elected a Fellow of the Society of Antiquaries, and in the same year succeeded to the office of one of its Secretaries, from which he retired a few months only before his decease.

In 1808, he commenced his *Topographical Dictionary of England, Scotland and Ireland*, and completed it in six volumes 4to in 1813.

In the year 1814, he became a Member of the Royal Society, and in 1815 a Member of the Irish Academy.

In 1818, he was appointed Secretary to the Committee of Education; and in 1835, he became one of the Commissioners for inquiring into the state of the public charities.

For his various publications, and more especially for his laborious and long-continued, though unsuccessful, attempts to establish professorships of the English language in various foreign Universities, he was rewarded by orders from several courts. Among these was the Order of Hanover, and that of the Iron Crown of Italy, bestowed on him by the Emperor of Austria.

He assisted in drawing up returns to Parliament on the state of

the population, and on the subject of the Poor Laws, and was author of many other works.

The University of Oxford conferred on him, in the year 1835, the degree of Doctor of Civil Law ; and he was elected Honorary Member of many learned Societies on the continent.

Mr. Carlisle was remarkable for the zeal that he displayed in whatever he undertook to perform, whether for the public service or in behalf of his friends ; and his persevering industry and unwearied activity were commensurate to his zeal. Pure and universal benevolence was the distinguishing feature of his private character, and in his social capacity he died as he had lived, without reproach. He closed his active literary life in the month of August last.

WILLIAM DEALTRY, D.D., Archdeacon of Surrey, Canon of Winchester, Rector of Clapham, and some time Fellow of Trinity College, Cambridge, died on the 15th of October 1847.

He was born in Yorkshire in the year 1775 ; a younger son of an ancient and respectable, but in later days not opulent family, the fragments of whose landed possessions were vested in him on the death of his father. He was sent young to Cambridge, and acquired such distinction at Catherine Hall, that the late venerable head of that Society, the Rev. Dr. Proctor, told him that he could not feel justified in desiring to detain him there while there was an opening for his admission to Trinity College. To that great establishment he accordingly transferred himself ; became one of its Fellows in 1798, and continued so till his marriage in 1814. In 1796, he was Second Wrangler, and Second Smith's Prizeman. In 1802, he was Moderator in the examinations of the University. At the foundation of the East India College in Hertfordshire, he was appointed Professor of Mathematics there. In 1810, he published his work on Fluxions, which more immediately connects him with the interests and reputation of the Royal Society. In that work he began with the simplest instance of the application of fluxional principles, and then proceeded, as he stated, to the more general cases. He felt strongly that the mere knowledge of certain truths is, to the great body of literary men, a matter of only secondary importance, when compared with the advantages which result from the exercise of the understanding and the improvement of the reasoning faculty ; and it may safely be added, that there have been few who, in their own persons, have exhibited a closer union of vigorous intellect, high science, and practical good sense.

His talents, indeed, were of a high order, and his acquirements were of corresponding extent and variety ; but that which, in connexion with his intellectual character, distinguished him above many, his equals in other points, was the humility and gentleness of his nature. It is not, in truth, within the range of these notices of the deaths of men of science to advert with any fulness to their personal and domestic character, and almost as little to the part which they may have taken in other paths distinct from that which led them to the Royal Society. But, in the briefest notice of any dignitary of

the Church, whose name occurs among the losses sustained by us in the past year, it is scarcely possible to record his scientific attainments and to forget at the same time the principle on which he pursued them, and the general tendency of his professional life and services. His principle was to employ faithfully, as a Christian minister, every talent committed to him; and, in his functions as Fellow and Tutor of Trinity College, and afterwards as Professor of Mathematics in the East India College (to which, with many very eminent men, Fellows of this Society, who have passed away before him, he was nominated at its first institution), he endeavoured to discharge his official duties always in harmony with his higher obligations as a Christian. Though most moderate in his temper and in his expressions, he was most firm in his views of truth and most fearless in his defence of them; and the part which he took as foremost in the early controversy on the Bible Society, thirty-five years since, may be admitted, without entering into the merits of the question, as a proof of the vigour of his mind and of the integrity of his principles. His latest public act was to preach the Fast-Day Sermon before the House of Commons on the 24th of March 1847, a duty comparatively frequent at an earlier period, but which, as no such case, it is believed, had occurred in the last quarter of a century, may not unfitly be recorded as constituting some distinction in the life of one selected for such an office.

The Right Hon. SIR EDWARD HYDE EAST was born in Jamaica on the 9th of September 1764, and was the grandson of Captain John East, who assisted Penn and Venables in the conquest of the island in 1655, and for this service had a grant of an estate from the Crown after the Restoration, which has descended to the present Baronet. By marriage Sir Edward was connected with the family of a cousin of the Lord Chancellor Hyde, Earl of Clarendon. Sir Edward's uncle, Mr. Hinton East, established a Botanic Garden in Jamaica, which boasted of contributions from the East Indies and China. Sir Edward was sent to England when seven or eight years old, and having passed through Harrow school, entered Magdalen College, Oxford. He became a student of the Inner Temple, and was called to the Bar in November 1786, having been previously two years under an eminent special pleader. In December 1786 he married Miss Hankey, who died in 1844, leaving an only son. Mr. East was introduced by the Duke of Chandos to Lord Mansfield, which led to an acquaintance with Mr. Justice Buller; and the friendship and advice of these distinguished men materially facilitated Mr. East's progress. But chiefly to himself he owed his first distinction, by the entirely new proceeding of periodical and systematic Reports of the King's Bench: a plan which has since been taken up in all the other courts in Westminster Hall. The Term Reports with which Mr. East was connected, consisted of 24 volumes, from 1794 to 1813, the first eight of which were the joint labours of Mr. Durnford and himself, and the last sixteen volumes resulted from his own industry and ability. Contemporaneously with these works he pub-

lished "The Pleas of the Crown," which has been considered a text-book on the Criminal Law of England. These literary professional labours materially interfered with Mr. East's Bar-life on the Western Circuit, and at the Exeter Quarter Sessions; and he was obliged to confine himself to particular cases. In the important constitutional case of the corporation of Helleston he successfully distinguished himself; also before an Election Committee of the House of Commons on Captain Preston's petition respecting the election for Cirencester. At the period of the beginning of the French Revolution Mr. East accepted a seat in Parliament for Great Bedwin, Wilts, of which the Earl of Aylesbury was patron. Partaking in the general enthusiasm of the country, which occasioned the volunteer armament, he entered as a private in the London Light Horse Volunteers; but about a year after, his neighbours in Bloomsbury Square associated themselves in an independent company, of which he was elected the commandant, and he bore the king's commission for several years. In the House of Commons he carried through a bill against considerable opposition, having the just and humane object of preventing the arbitrary removals of the poor from parishes; and of this bill the late Sir Samuel Romilly said, he would rather have been its author, than the author of any other act in George the Third's reign.

In 1800, impaired health induced Mr. East to resign his seat. In 1812, he applied for and obtained from Mr. Percival the office of Chief Justice of the Supreme Court in Calcutta. Mr. Percival's atrocious assassination, however, retarded the completion of the patent; but the appointment was confirmed by Lord Liverpool in February 1813, and Mr. East was knighted. He continued in India eight years; and the friendly relations he maintained with the Governor-General advanced the public interests. He early mixed with the native gentry, particularly the Hindoos, and finding a strong desire among them for European knowledge, he projected a plan of secular education; and to work it out a meeting of the native gentry was convened at his own house in 1806, the Government not taking any direct part in the institution of the project. A subscription was opened, and liberal contributions made, for securing a building, the provision of instructors, &c. As various castes of scholars were to meet under the same roof, a considerable innovation would be effected on ancient prejudices. The European gentry soon gave their aid, and the result was the Hindoo College, the precursor of the many noble educational institutions which the governments of India have established in the different Presidencies.

Sir Edward East resigned his office in January 1822, and returned to England. Previously to his departure the native gentry of Calcutta expressed their gratitude to him, in an address, for his able and upright administration of the law, and particularly for the stimulus he had given to native education by promoting the foundation of the Hindoo College; and in testimony of the sincerity of their assurances, they had a statue of Sir Edward executed by the hands of Chantry, and placed in the Grand Jury Room of Calcutta.

After his return he re-entered the House of Commons as member for Winchester, and sat during two Parliaments. In April 1823, George IV. raised him to the Baronetcy. In November 1823, he was called to the Bench of the Inner Temple; and King William on his accession conferred on him the further distinction of a Privy Councillor; and he took part in the Judicial Committee in cases of appeals from the East Indies. Mindful of his native friends in the East, he associated himself with the late Lord Munster and others who had been in India, in founding the Royal Asiatic Society of Great Britain and Ireland, together with the Oriental Translation Committee as auxiliary to that Society, for the purpose of putting into an English dress curious and important works in the Eastern languages, relating to History, Science or Literature. The Society and the Committee equally flourished; and the latter has placed before the European world many Oriental works, which, but for its labours, must have remained long unknown. In his late years, Sir Edward partly occupied himself with religious and controversial subjects, and published, under the signature of "A Layman," a treatise "On the Origin of Evil in the World," and another "On the mysterious Book of Job."

Sir Edward Hyde East, Bart., became a member of our Society in April 1799, and died in the course of the present year.

Mr. MACVEY NAPIER was born in the year 1777, and descended from an ancient family in the West of Scotland. After successful studies in the two Universities of Glasgow and Edinburgh, he became a member of the Society of Writers to the Signet. His talents would probably have led him to great success in the legal profession, had not his taste for literary and philosophical pursuits led him to other avocations. He was, however, the object of so much respect and regard, that he was at an early age elected by the Society to the honourable office of their librarian; an office for which he seems to have been admirably qualified. At a later period, they selected him from many able competitors to deliver lectures on Conveyancing. The University of Edinburgh subsequently evinced their sense of the merits of these lectures by converting the lectureship into a professorship, with a handsome endowment, and permitting Mr. Napier to become the professor without ceasing to be librarian.

In the year 1814, Mr. Napier edited the Supplement to the *Encyclopædia Britannica*, and at a later period, he superintended a new edition of the same important work, and by so doing conferred a great benefit on the science of his country and of the world.

In the year 1830, Mr. Napier was appointed to the situation of principal Clerk of Session, and resigned that of librarian to the Writers to the Signet, having the year before succeeded Mr. Jeffery as the editor of one of the most influential of those quarterly journals whose publication is of the greatest importance to the literary and scientific interests of the country. He had been a contributor to the *Edinburgh Review* previously, and was therefore the better able to manage it with success. A memoir that has been published

on his life, evidently written by one well-acquainted with his merits, remarks, "He was in all respects perfectly trustworthy : all secrets confided to him were sacred ; and the most distinguished of his contributors were farther ready to admit the value of his suggestions and the justice of his criticisms."

He continued to attend to the duties of his class at the University very nearly to the time of his death.

He married young, and left a large family at his death, which happened in the 71st year of his age.

During the latter years of his life his health had been declining ; but his intellectual powers were unimpaired to the last. By those with whom he was intimate even a higher estimate of his talents is entertained than what is felt by those who merely look to the important share that he took in literature and science as the editor of the *Encyclopædia Britannica* and the *Edinburgh Review*. So at least says the author of the memoir alluded to already. This seems difficult ; but they alone can judge of the merits of his confidential correspondence and his part in domestic society : it is perhaps more important to say, that he was "a pious, an intelligent and an honest friend." He became a Fellow of the Royal Society in the year 1817.

The Rev. JOHN HAILSTONE was born on the 13th of December, 1759, and received his early education at Beverley School in Yorkshire. From thence he went to Cambridge, where he pursued his mathematical studies with so much success that he took the high degree of Second Wrangler at the examination in the year 1782. The same course of study was followed by him in after-life.

In the year 1784, he became a Fellow of Trinity College, and in 1788, he was appointed to the office of Woodwardian Professor of Mineralogy. After holding this Professorship for the long period of thirty years, he married and retired to the vicarage of Trumpington, near the University ; a village interesting to the lover of literature as having been the residence of Anstey, the author of the *Bath Guide*, and at a subsequent period, of Mr. Hailstone's brother professor, the celebrated traveller, Edward Daniel Clark.

Here Mr. Hailstone died on the 9th of last June, at the very advanced age of 87, retaining his faculties till the last. After his election to the Woodwardian Professorship he went to Germany to profit by the lectures of Werner. To Mr. Hailstone the University is indebted for additions to her collection of minerals and fossils. He published a syllabus of Lectures, but did not succeed in bringing together a class, as he received little or no encouragement from the heads of the University. He published little : one paper in the *Geological Transactions*, and a few short notices in the *Transactions of the Cambridge Philosophical Society*. In politics he was a whig. He was a friend to education, as he showed by the endowment of a day-school, and the expenditure of several hundred pounds in improving a parish school.

The Rev. WILLIAM PEARSON, LL.D., was upwards of twenty-eight years a Fellow of this Society, and well-known for his ardent attachment to practical science. He was born at Whitbeck, in Cumberland, on the 20th of April, 1767, and was educated at the Hawkshead Grammar-school. Being of an active mechanical turn, he employed himself in early life in constructing a curious astronomical clock; and at different periods afterwards he made a complete Tellerian, a very detailed Planetarium, a Satellitian for showing the motions and periods of Jupiter's satellites, and a complex Orrery. When he became proprietor of the large seminary at East Sheen, near Richmond, he erected an excellent private observatory, and furnished it with so liberal a supply of the best instruments, that he was induced to write a detailed description of them, and thereby produced his principal publication, "Practical Astronomy;" a work for which the gold medal of the Royal Astronomical Society was awarded him. Besides this, Dr. Pearson also wrote numerous articles for Rees's Cyclopædia; and he contributed to the Memoirs of the Royal Astronomical Society, his last paper in those volumes being a Catalogue of 520 stars, made with a three-foot altitude and azimuth instrument, in the observatory which he had built at his rectory at South Kilworth, in Leicestershire.

Dr. Pearson enjoyed robust health to an advanced period of life, and, after a meritorious and useful career, expired at South Kilworth on the 6th of last September.

Professor MACCULLAGH was born in the year 1809. The place of his birth was the townland of Loughlindhuhussey, then possessed by his grandfather, a man of considerable acquirements, and a scholar of some pretensions. This place is in the parish of Upper Badoney, in the county of Tyrone, about ten miles from Strabane.

Shortly after his birth, his father removed from the mountain farm he occupied to Strabane, principally that he might have the means of educating his son, it not being possible to do so in the secluded glen in which he lived. In Strabane he was, while very young, placed at the only respectable school at that time in the town. Here his genius soon displayed itself. After school hours he was almost constantly employed in solving mathematical problems; yet, it is remembered that when Euclid was first put into his hands he was dissatisfied with the task. He was only required to get the solution of a problem by heart, like a copy of verses, and repeat it. There was no attempt made at explanation. This did not suit the character of his mind, which even then could not rest until it thoroughly understood the nature of everything that came before it. For some days he was restless, unhappy and puzzled, wandering about with his Euclid in his hand. In his perplexity he met a neighbour, a working carpenter, a man of cleverness and talent, who, seeing the boy evidently unhappy, was good enough to ask him what was the matter. He immediately told his good-natured friend that he was obliged to get by heart a set of strange words, the meaning of which

he wanted to understand; at the same time showing him the proposition he was committing to memory for the next day's task. The carpenter instantly sat down with the puzzled boy, and in a short time showed him what a proof was. This was the way in which Professor MacCullagh first learned to prove a proposition in Euclid. He was afterwards, when commencing his classical studies, sent to Lifford to the school of the Rev. John Graham, and subsequently to that of the Rev. Thomas Rolleston. He entered Trinity College, Dublin, as a pensioner in November 1824, being then in the fifteenth year of his age. In the following year, he became a candidate for Sizarship, and was successful. Throughout his under-graduate course he carried away every Honour both in Science and Classics. In 1827, he obtained a Scholarship, and in 1832, (the year when his Scholarship expired) he was elected a Fellow. In 1835, he became Professor of Mathematics, Dr. Sadleir (the present Provost) having resigned expressly to make way for him. In 1843, he was chosen to fill the Chair of Natural Philosophy, in the room of the present Dr. Lloyd, who, by becoming a Senior Fellow, was incapacitated from continuing to hold it. In 1830, his first paper on Refracted Light was read in the Royal Irish Academy, and shortly after he became a Member of it, and contributed largely to place it in that position which it now holds among the learned Societies of the world. In 1838, he obtained the Conyngham Gold Medal from the Academy for his paper "On the Laws of Crystalline Reflexion and Refraction," which was presented to him, with an Address (since printed in the Proceedings) respecting the then existing state of science in that department, by Sir Wm. Rowan Hamilton, who was at that time President of the Academy. In 1839, Professor MacCullagh may be regarded as having laid the foundation of the highly valuable Museum of Irish Antiquities, now in Dublin, by presenting to the Royal Irish Academy the celebrated Cross of Cong. In presenting the Cross to the Academy, Professor MacCullagh stated, that his motive for doing so was, by putting it in the possession of a public body, to save it from that shameful process of destruction to which everything venerable in Ireland had been exposed for centuries, and to contribute at the same time to the formation of a national collection, the want of which, he had been told, was regarded by Sir Walter Scott as a disgrace to a country so abounding in valuable remains. He afterwards assisted in enlarging the Museum, which he had thus (it may be said) commenced, by munificent subscriptions. His contributions to the Academy were not confined to scientific subjects; they embraced matters of general literature, especially some connected with ancient Egyptian chronology. In 1842, he was awarded the Copley Medal for his investigations on the Theory of Light. Among the competitors were Bessel, Dumas, and Murchison. On this occasion he was much indebted to Dr. Lloyd's excellent report.

In the following year, he was elected a Fellow of the Royal Society, but was not a contributor to its Transactions. The reason frequently assigned by him for this was, that he felt bound to do as much as

in him lay to raise and elevate the literary and scientific institutions of the country of his birth. This with him was ever a paramount object; and in connexion with that object, in the summer of the present year, he resolved, at great inconvenience to himself, to make an effort to free the University with which he was so closely connected from what he considered a disgrace, namely, its being represented in Parliament by men not educated within its walls. He was influenced, too, by what he considered a public want, that the interests of science and literature should be represented in the Imperial Parliament.

He was not successful; but his personal bearing throughout the contest was such as to secure to him the admiration and the good-will of all opponents as well as friends. This remarkable contest was, as might be expected, commenced and carried on by Professor MacCullagh, without his ever accepting that pecuniary assistance which was frequently and warmly offered by others, but by him was gratefully declined.

About the middle of September, he commenced working at a subject which he was anxious to free his mind from as soon as possible. The heading of the paper remains: it is, "A Theory of Total Reflexion of Light. By James MacCullagh, Fellow of Trinity College, Dublin. Read May 24th, 1841."

Confinement and over-work gradually produced disease, mental as well as bodily; and after a few days' illness, an end was put to his career on the night of the 24th of October, in the 38th year of his age.

As it is understood that there will be given at the stated Meeting of the Royal Irish Academy, in March next, a more lengthened memoir of Professor MacCullagh's life than could conveniently be offered to the Royal Society now, I have contented myself with the few facts and dates which have been thus rapidly stated; and as I am led to believe that there will be given to the public on the same occasion an accurate and detailed account of his scientific labours and discoveries, which it has been found difficult (through want of time) to put together in a satisfactory manner for our Meeting this night, I will merely glance at some of the things done by him since this Society awarded to him the Medal already mentioned, being the highest honour in their power to bestow. My information is derived chiefly from gentlemen who have attended to and profited by his official teaching in the University of Dublin, and who, having since attained distinction and station in that University, speak now with a natural enthusiasm of their lost preceptor and friend.

Since Professor MacCullagh obtained the Copley Medal, in addition to the different papers which he published in the Proceedings and in the Transactions of the Royal Irish Academy, he has given seven courses of lectures in different branches of Natural Philosophy, in his capacity of professor of that subject, having for about eight years previously filled the Chair of Mathematics in a manner which those alone can fully appreciate who know what was the state of mathematical knowledge in the Dublin University previous to his

election and what it is now, and who can compare the state in which he found it with that in which he left it. I allude to these Lectures, because it was in the delivery of them, that is, in the conscientious and due performance of the proper duties of his calling, that Professor MacCullagh is reported to have ever appeared to the greatest advantage. It was there that he used to display the extensive information, the elaborate research, and the vast acquired treasures of his highly cultivated mind; and it was there that he most delighted to turn to account the noble faculty of inventive genius with which he was so eminently gifted, in improving, by means of it, every subject he ever handled. There is no one capable of appreciating such subjects, and who enjoyed the privilege of attending the courses above referred to, but will admit, that during the several years of his purely mathematical lectures, nothing could exceed the depth or surpass the exquisite taste and elegance of all his original conceptions, both in analysis and geometry. Nor will it be denied by any who were so happy as to possess the opportunity of judging, that during the last three years and a half in which he filled the Chair of Natural Philosophy, his earnest endeavour was ever to instil sound and accurate physical conceptions into the minds of his hearers, and to array them, when stated in mathematical language, in all the charms which arises from true taste and appropriate refinement.

In his first course of Lectures—on the rotation of a solid body round a fixed point—he completely solved the case of a body abandoned to its own motions on receiving a primitive impulse in any direction, and under the action of no external accelerating forces. This problem he had finished several years before, and was preparing it for publication, when he found that he had been just anticipated, in many though not in all respects, by Poinso, who published about that time a very elegant little tract on the subject. During the same course of Lectures he gave some interesting and original theorems respecting the rotation of surfaces of revolution moving freely in space, and acted on by any external accelerating forces, directed to any number of fixed centres.

In his course of Lectures on attractions, he gave some very beautiful theorems respecting the attraction of a body of any nature and form on a point distant a long way in comparison of its own dimensions. And he gave some most simple and elegant geometrical methods for finding the attraction of an homogeneous ellipsoid on any internal point. The subject of attractions seems indeed to have been a favourite one with him; and he on several previous occasions gave new and beautiful theorems in it, and in many important respects improved the existing theories, keeping always in advance of the knowledge of the time. He delivered also courses of Lectures on part of Sir Isaac Newton's *Principia*, and on Heat, Electricity and Magnetism.

I now come to Professor MacCullagh's great course of Lectures on "The Dynamical Theory of Light," which was on his part (whatever other researches on that subject may have been elsewhere made) the unaided creation of his own genius; and was founded

on one single and simple hypothesis, on which as a basis (to borrow the language of Dr. Lloyd when speaking of Fresnel's beautiful theory of double refraction), he "has reared the noblest fabric which has ever adorned the domain of physical science, Newton's system of the Universe alone excepted." If we now venture to say that Professor MacCullagh ranks as a philosopher higher than Fresnel in the region of Light (and if that be admitted, he will certainly rank inferior to none on that subject), it is not thereby designed to institute any comparison between labours so different in their nature as those of these two great men. Professor MacCullagh may be regarded as standing to Fresnel in the same relation as Newton to Kepler. Fresnel undoubtedly discovered all the elegant laws of the propagation and double refraction of light in crystallized media, as well as in ordinary, with some of those of total reflexion at the bounding surfaces of ordinary media, but he did not account for them on any correct mechanical principles; with respect to propagation, the very first principles from which he sets out are such as cannot now be admitted: with respect to ordinary reflexion, he partly accounted for them on correct principles, in the particular case of ordinary media, which was the only one for which he had ever given them. Professor MacCullagh, on the contrary, not only deduced the known laws in all the three cases from mechanical principles of a nature so simple and probable, that they cannot but bear conviction of their truth to any mind reflecting on them, with anything like the attention they deserve, but he also gave the general equations of the propagation of light not only for all known media, but also for all media which could ever be discovered or even conceived. And with these he gave also the general conditions which must be fulfilled at the common bounding surface of every two, not only known, but conceivable media, and which in every case give all the laws of reflexion and of refraction, whether ordinary or total.

Thus did he deliver to his hearers and to posterity a perfect and complete mechanical theory; that is to say, analytically complete: so that any one who in future may attempt to discover in this region of science, can only do so by treading in his steps, and adopting his principles, but can never supersede them. In fact, he has discovered and handed down the general principles which must hold in all cases. It remains for future investigators only to apply them. He himself applied them to the two most general cases of propagation, viz. of polarized waves of undiminishing intensity in a crystalline medium, and of that peculiar species of propagated vibrations which take place in the rarer medium in every case of total reflexion at the surface either of an ordinary or of a crystalline medium. In the former case he arrived at all the laws of propagation in crystalline media which were discovered by Fresnel, with one single variation, and that the very one on which he himself had long previously corrected Fresnel, viz. the vibrations of the æther, in place of coming out to be perpendicular to the plane of polarization, as Fresnel had supposed, came out on the contrary to be parallel to that plane, as MacCullagh himself had supposed.

He was enabled by discoveries of his own, to deduce again in a far easier manner, all the beautiful geometrical laws of crystalline reflexion and refraction, which he had formerly laid before the Royal Irish Academy in 1837, and for which that body awarded him the honorary distinction of the Conyngham Medal, which I have before alluded to. And they fully confirmed the acute prophecy then made by his sagacious mind, on finding to his astonishment, that a law of reflexion depended for its existence on the existence of a law of propagation ; when he said that the law of vis viva which he had assumed at the outset could not be a fundamental but rather a secondary law, and remarked that perhaps the next step in physical optics would be the deduction, as parts of one system, of all the laws both of propagation and reflexion from some higher and more general law, containing them both as particular cases : anticipations which were singled out for special attention, in the Address delivered by Sir W. Rowan Hamilton, on the occasion already referred to. How little perhaps did Professor MacCullagh then know that both of his own prophecies were destined to be so soon fulfilled, and both by the powers of his own mighty and creative mind !

In the general case of total reflexion at the surface of a crystal, he afterwards showed, by a most ingenious employment of imaginary quantities, that the refraction was still double, and never more than double ; and he showed that the directions of the refracted rays remained always the same, whatever were the incidence, provided it gave total reflexion. Again, as he had done for the case of ordinary reflexion by means of his beautiful theorem of the polar plane, so in the case of total reflexion he determined the two directions of polarization, in a given incident plane polarized wave, which would give uniradial refracted rays, by means not of a polar plane, but of a polar cylinder, which he succeeded in showing was the analogous surface in the more difficult cases.

In the particular case of total reflexion at the surface of an ordinary medium, the whole theory of total reflexion became exceedingly simple, and that case is left by him completed. He showed that whatever were the incidence, the refracted wave was always perpendicular to the intersection of the plane of incidence, and of the surface of the crystal ; he showed that the axes of the ellipse of vibration, projected on the plane of incidence, were parallel and perpendicular to that line ; he gave a beautiful construction, by means of an equilateral hyperbola touching with its vertex the section of the index sphere at the point where it intersects the same right line, for determining the velocity of the refracted wave, and the ratio of the axes of its elliptic vibrations corresponding to any given incidence ; he determined at once the limiting angle of total reflexion : and, finally, he got out the two empirical formulæ of Fresnel, for the acceleration of the refracted phase over the incident, and the subsequent equal acceleration of the reflected phase over the refracted ; the one for the case of the incident light polarized in the plane of incidence, and the other for the same polarized in the perpendicular plane. For all cases, whether of propagation or of reflexion, ordi-

nary or total, the whole theory, as he has left it, is analytically complete : but the geometrical interpretations in the general case of total reflexion at the surface of a crystal present very great difficulties. Many of these his acute intellect had with great labour surmounted ; he had been working hard at the subject for the last four weeks of his life, and with so much success, that he had actually commenced a new paper for the Irish Transactions, embodying the results of his latest investigations. The heading of this paper, which I have already mentioned, remains in his own handwriting. It is believed that several of his manuscripts on other subjects are in the possession of his family, although it was not his custom to preserve many written papers.

ALEXANDER BRONGNIART, the son of a distinguished architect, was born at Paris in the year 1770. In early youth he derived his love of science, not only from his father, but also from his father's friends, Franklin, Lavoisier, and other eminent men of the day. He received his earliest lessons in science at the École des Mines, and afterwards at the École de Médecine. At the age of twenty, he came to England, and visited the mines of Derbyshire. On his return to his own country, he published a memoir on enamelling, which induced M. Berthollet, several years later, to recommend his appointment to the office of Director of the manufactory of Sèvres. At the time of the French Revolution, he had the misfortune to be suspected of the offence of favouring the escape of M. Broussonet, and was thrown into prison. More fortunate however than so many others who were arrested in that terrible time, he escaped with his life, and, after his release, returned to Paris and became a Mining Engineer. He subsequently was appointed Professor of Natural History at the École Centrale des Quatre Nations ; and in the year 1800, commenced his superintendence of the manufactory of porcelain at Sèvres, an office filled by him for the long period of nearly half a century.

In the year 1807, appeared M. Brongniart's '*Traité Élémentaire de Minéralogie*,' a work of great importance and merit.

M. Brongniart did not confine his scientific researches to mineralogy. Zoology also attracted his attention and profited by his labours, and a community of pursuit brought him into close relation with the illustrious Cuvier.

In the year 1808, he revisited this country and studied its freshwater formations, a study of great importance with reference to a work published by him, in conjunction with M. Cuvier, after his return to France, on the Geology of the Environs of Paris.

In consequence of the great service he had rendered to science, he was elected a member of the French Academy in the year 1815. Two years later, he visited Switzerland, the Alps and Italy, where he extended his geological fame by fresh observations ; and in 1822, he published the second and enlarged edition of his *Geology of the neighbourhood of the capital of France*.

In the year 1824, he made a journey in Norway and Sweden, and

in the course of it studied the more early fossiliferous deposits, and brought together the materials for a memoir on erratic blocks.

Other geological questions occupied his thoughts, and among them were the interesting phenomena of volcanos, and especially of Vesuvius.

Such is a brief account of the scientific career of this zealous and active philosopher, as exhibited in the touching address delivered after his death by his friend M. Elie de Beaumont. Science was not however his only, or perhaps his principal occupation, though it might be supposed that he had little leisure for any other. On the contrary, he diligently discharged for forty-seven years the duties of the director of a great national manufactory, and during the later years of his life, he published two important works on the potter's art; an art which, dating from very early periods of human existence, so eminently unites the beautiful with the useful; an art assuming a very different appearance at Nola or Pekin, at Firenze or Dresden; an art which seems to mark out the kind as well as degree of civilization of the different nations in which it has flourished or declined.

We should be mistaken, again, were we to imagine that natural science on the one hand and the care of the establishment of Sèvres on the other absorbed the whole thoughts and time of M. Brongniart. He took an active part in the affairs of the Institute, a zealous share in the advancement of knowledge by scientific association, and a lively interest in the pursuits of other inquirers after truth. He was, says M. de Beaumont, "non seulement le savant éminent, l'esprit supérieur, mais encore l'homme aimable, l'homme excellent, l'honnête homme, l'homme profondément dévoué aux plus nobles devoirs."

He became a Foreign Member of the Royal Society in the year 1815, and died at the advanced age of seventy-seven, admired, respected, beloved and lamented. He has left behind him a son inheriting his love for science and devotion to its cause.

Upon the motion of Sir Robert Harry Inglis, Bart., the thanks of the Meeting were given to the President for his Address, with a request that he would allow it to be printed.

The Statutes relating to the election of Council and Officers having been read by the Secretary, and the Dean of Westminster and Edward Forster, Esq. having, with the consent of the Society, been nominated Scrutators to assist the Secretaries in examining the lists, the votes of the Fellows present were collected.

The Dean of Westminster reported the following Noblemen and Gentlemen as being duly elected Officers and Council for the ensuing year, viz.—

President.—The Marquis of Northampton.

Treasurer.—George Rennie, Esq.

Secretaries. { Peter Mark Roget, M.D.
 { Samuel Hunter Christie, Esq., M.A.

Foreign Secretary.—Lieut.-Col. Edward Sabine, R.A.

Other Members of the Council.—Thomas Bell, Esq.; Robert Brown, Esq., D.C.L.; Sir James Clark, Bart., M.D.; Samuel Cooper, Esq.; Sir Henry De la Beche; Edward Forbes, Esq.; John P. Gassiot, Esq.; Thomas Graham, Esq., M.A.; John Thomas Graves, Esq., M.A.; Sir John F. W. Herschel, Bart., M.A.; William Hopkins, Esq., M.A.; Sir Robert H. Inglis, Bart., LL.D.; Charles Lyell, Esq., M.A.; the Duke of Northumberland; George Richardson Porter, Esq.; Lieut.-Col. Sykes.

The thanks of the Society were given to the Scrutators for their trouble in examining the lists.

The following is a statement of the Receipts and Expenditure during the past year:—

*Statement of the Receipts and Payments of the Royal Society between
 Nov. 29, 1846, and Nov. 29, 1847.*

RECEIPTS.

	£	s.	d.
Balance in the hands of the Treasurer at the last Audit ..	1885	13	2
Weekly Contributions, at one shilling	49	8	0
Quarterly Contributions at £1	1067	0	0
	1116	8	0
22 Admission Fees	220	0	0
3 Compositions for Annual Payments at £40	120	0	0
5 Compositions for Annual Payments at £60	300	0	0
One year's rent of estate at Mablethorpe: due at Michaelmas 1846	125	0	0
One year's Income Tax	3	13	0
	121	7	0
One year's rent of estate at Acton: due at Michaelmas 1846	70	0	0
One year's Income Tax	2	0	10
	67	19	2
One year's rent of estate at Acton: due at Michaelmas 1847	70	0	0
One year's Income Tax	2	0	10
	67	19	2
One year's Fee farm rent of lands in Sussex: due at Michaelmas 1847	19	4	0
Carried forward.....	3918	10	6

	£	s.	d.
Brought forward.....	3918	10	6
One-fifth of the clear rent of an estate at Lambeth Hill, from the Royal College of Physicians, in pursuance of Lady Sadleir's will: due at Midsummer 1847	3	0	0
Dividends on Stock:—			
One year's dividend on £14,000 Reduced 3 per cent. Annuities	420	0	0
Less Income Tax	12	5	0
	<hr/>	407	15 0
One year's dividend on £7652 1s. 1d. 3 per cent. Consols	229	10	0
Less Income Tax	6	12	8
	<hr/>	222	17 4
<i>Donation Fund.</i>			
One year's dividend on £4843 14s. 7d.	145	6	2
Less Income Tax	4	4	10
	<hr/>	141	1 4
<i>Rumford Fund.</i>			
One year's dividend on 2430l. 12s. 5d. Consols	72	17	9
Less Income Tax	2	1	9
	<hr/>	70	16 0
<i>Fairchild Fund.</i>			
One year's dividend on £100 New South Sea Annuities	3	0	0
<i>Sir Clifton Wintringham's Bequest.</i>			
One year's dividend on £1200 Consols	36	0	0
Less Income Tax	1	1	0
	<hr/>	34	19 0
Miscellaneous Receipts:—			
Sale of Philosophical Transactions, Abstracts of Papers, and Catalogues of the Royal Society's Library	328	4	9
Bowles and Gardiner, discount on bill	3	3	0
Total Receipts.....	<hr/>	<hr/>	<hr/>
	£5133	6	11

PAYMENTS.

	£	s.	d.
<i>Fairchild Lecture</i> .—The Rev. J. J. Ellis, for delivering the Fairchild Lecture for 1847	3	0	0
<i>Bakerian Lecture</i> .—W. R. Grove, Esq., for the Bakerian Lecture for 1847	4	0	0
Books purchased:	£	s.	d.
Dulau and Co.: for Books	23	10	11
Taylor: for ditto	15	0	0
Lovejoy: for ditto	14	0	0
Bell: for ditto	1	13	6
Second-hand ditto	19	13	6
	73 17 5		
Salaries:—			
Dr. Roget, one year, as Secretary	105	0	0
S. H. Christie, Esq., one year, as Secretary ..	105	0	0
Ditto for Index to Phil. Trans.	5	5	0
Col. Sabine, one year, as Foreign Secretary ..	20	0	0
Charles R. Weld, Esq., one year, as Assistant- Secretary and Librarian	300	0	0
Mr. White, one year, as Attendant	80	0	0
G. Holtzer, one year, as Porter	30	0	0
Ditto, for extra Porterage	10	0	0
	655 5 0		
Purchase of £2185 3s. 8d. 3 per cent. Consols	1953	15	0
Fire Insurance, on the Society's Property	45	1	6
Gratuity to Bank Clerks and Postages	1	1	0
Col. Lloyd: Subscription overpaid	4	0	0
Bills:—			
Taylor:			
Printing the Phil. Trans., 1846, part 4 ..	169	6	0
Ditto, 1847, part 1	73	0	0
Ditto, Proceedings, Nos. 65—68; Circulars, Lists of Fellows, Ballot-lists, Statement of Payments, and Minutes of Council; &c. &c.	150	18	0
	393 4 0		
Basire:			
Engraving Plates in Transactions, 1846, part 4	199	2	7
Ditto, 1847, part 1	20	5	0
Ditto, Miscellaneous Engraving	4	10	0
	223 17 7		
Carried forward	3357	1	6

	£	s.	d.	£	s.	d.
Brought forward.	3357	1	6			
Walker :						
Engraving Plates in Transactions, 1846,						
part 3.	166	12	0			
Ditto, 1847, part 1	30	15	0			
	<hr/>			197	7	0
Burgess :						
For Lithography				25	9	0
Bowles and Gardiner :						
Paper for the Phil. Trans., 1846, part 4, }				121	0	0
1847, part 1						
Gyde :						
Boarding and Sewing 800 Parts of Phil.						
Trans., 1846, part 3	11	17	6			
Ditto, 1846, part 4.	11	17	6			
Ditto, 1847, part 1	11	11	6			
Ditto, Extra binding	19	11	3			
	<hr/>			54	17	9
Tuckett :						
Bookbinding	32	14	0			
Limbird :						
For Stationery	12	1	9			
Saunderson :						
For Shipping Expenses	16	4	0			
Brecknell and Turner :						
Candles, and Lamp Oil	38	6	0			
Arnold :						
For Coals	29	8	0			
Sharpus :						
For China	5	17	8			
Gwillim :						
Mats, Brushes, Fire-wood, &c.	8	12	0			
Cubitt :						
For repairs and relaying Carpets, &c.	10	18	7			
Laing :						
House Painting, &c.	206	0	0			
Luck, Kent and Co. :						
Carpets and Oil-cloth.	35	11	0			
White :						
Bookcase	7	10	0			
Humphries :						
For Livery	5	10	0			
	<hr/>			408	13	0
Taxes and Parish Rates :						
Land and Assessed Taxes	21	14	2			
Income Tax	4	19	2			
	<hr/>			26	13	4
Carried forward.	4191	1	7			

	£	s.	d.
Brought forward.....	4191	1	7
Rumford Fund:			
Mr. Wyon, for Medals	64	0	0
Mr. Faraday, Balance of Dividends	73	11	6
		137	11 6
Donation Fund:			
Mr. Brooke, for Self-Registering Magnetical			
Photographic Apparatus	50	0	0
Mr. Miller, for Meteorological Instruments	20	0	0
		70	0 0
Petty Charges:			
Postage and Carriage.....	27	7	0
Expenses on Foreign Packets, &c.	8	1	7
Stamps	1	5	0
Charwoman's Wages	31	0	0
Miscellaneous expenses	30	9	0
		98	2 7
Balance in the hands of the Treasurer		636	11 3
Total....	£5133	6	11

GEORGE RENNIE, *Treasurer.*

November 30th, 1847.

Estates and Property of the Royal Society.

Estate at Mablethorpe, Lincolnshire (55 A. 2 R. 2 P.). Rent £125 per annum.

Estate at Acton, Middlesex (33 acres). Rent £70 per annum.

Fee farm rent in Sussex, £19 4s. per annum.

One-fifth of the clear rent of an estate at Lambeth Hill, from the College of Physicians, £3 per annum.

£14,000 Reduced 3 per cent. Annuities.

£17,411 13s. 9d. Consolidated Bank Annuities.

The Balances in hand, now belonging to the several trusts, are as under :
viz.—

	£	s.	d.
<i>Donation Fund</i>	476	1	3
<i>Rumford Fund</i>	70	16	0

The following table shows the progress and present state of the Society with respect to the number of Fellows:—

	Patron and Honorary.	Foreign.	Having com- pounded.	Paying £2 12s. Annually.	Paying £4 Annually.	Total.
November 1846....	13	47	506	19	254	839
Since elected.....	.....	+1	+4	.....	+17	+22
Since compounded	.....	.....	+4	.....	—4	
Defaulters .....	.....	.....	.....	.....	—3	— 3
Since deceased ....	.....	—1	—24	—1	—4	—30
November 1847....	13	47	490	18	260	828

Annual Contributions.

1830.....	£363	4	0
1831.....	286	0	0
1832.....	255	6	0
1833.....	283	7	6
1834.....	318	18	6
1835.....	346	12	6
1836.....	495	0	0
1837.....	531	0	0
1838.....	599	4	0
1839.....	666	16	0
1840.....	767	4	0
1841.....	815	12	0
1842.....	910	8	0
1843.....	933	16	0
1844.....	1025	16	0
1845.....	1010	0	0
1846.....	1074	0	0
1847.....	1116	8	0